

**On two South Asian genera *Ceramea* DIAKONOFF
and *Terthreutis* MEYRICK (Lepidoptera: Tortricidae)**

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ABSTRACT. *Ceramea* and *Terthreutis* are revised. *C. brunneica* sp. n., *T. combesae* sp. n., *T. chiangmaiana* sp. n., *T. kevinci* sp. n. are described as new. The male genitalia of *C. singularis* DIAKONOFF are newly described.

KEY WORDS: Lepidoptera, Tortricidae, *Ceramea*, *Terthreutis*, new species, Oriental South Asia.

INTRODUCTION

Ceramea was erected for a single female. Based on the male genitalia it is closely related to *Terthreutis*. One new species is included in this originally monotypic genus.

Terthreutis was redescribed by RAZOWSKI (1987) on basis of four species. The examination of the present material allows to complete it with some data. At present 12 species are known of which three are described as new.

The systematic position of the two genera is not clear. DIAKONOFF (1976) placed *Terthreutis* in Cnephasiini, RAZOWSKI (1987) in subtribe Euliae of Archipini. HORAK (1999) suggested that *Drachmobola* MEYRICK and its allies which resemble *Terthreutis* in the genitalia belong in Archipini. Hence I suppose that the inclusion of them in Archipini is acceptable, at least at present.

Material and note

This paper is based on the material housed in the Natural History Museum, London (NHML).

Note. The numbers included in the descriptions of the labial palpus refer to the proportion of their total length to the horizontal diameter of the compound eye.

List of known species

Ceramea DIAKONOFF, 1951
C. singularis DIAKONOFF, 1951 - Burma
C. bruneica sp.n. - Brunei
Terthreutis MEYRICK, 1918
C. argentea (BUTLER, 1886) - India: Bengal
C. xanthocycla (MEYRICK, 1938) - China: Li-kiang
C. bulligera MEYRICK, 1928 - India: Bengal; Sikkim
C. combesae sp.n. - Thailand
C. sphaerocosma MEYRICK, 1918 - India: Assam; Sikkim, Nepal
C. duosticta WILEMEN & STRINGER, 1929 - Taiwan
C. Chiangmaiana sp.n. - Thailand
C. kevinii sp.n. - Thailand
C. furcata RAZOWSKI, 2008 - Vietnam
C. bipunctata BAI, 1993 - China: Hainan
C. orbicularis BAI, 1993 - China: Sichuan
C. series BAI, 1993 - China: Sichuan

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SYSTEMATICS

Ceramea DIAKONOFF, 1951

Ceramea DIAKONOFF, 1951, Ark. Zool.,(2)3: 61 Type species: *Ceramea singularis* DIAKONOFF, 1951.

Remarks

Ceramea was erected to comprise a single species; now another species (*bruneica*) is described.

Ceramea is related to *Terthreutis* as its male and female genitalia show (shape of valva, gnathos, aedeagus, presence and shape of postostial lobes). It differs from the mentioned genus chiefly in the markings of forewing (except for basal blotch and its pale edges), presence of well sclerotized mediolateral parts of transtilla, and strongly sclerotized, submedian signum.

The newly described species differs from the type-species chiefly in the pattern and shape of forewing. Hence it is not included in the characteristics of the genus.

Ceramea singularis DIAKONOFF

(Figs 15, 16)

Ceramea singularis DIAKONOFF, 1951, Ark. Zool., (2)3: 62. Type locality: Myanmar, Burma.

Description

Facies of the examined specimens fits the original description, female is somewhat darker than the male.

Male genitalia (Figs 1, 2, not known until now). Uncus slender, long, strongly bent; socius slender; arm of gnathos moderate terminating in lateral lobe, terminal plate fairly large; valva broad, weakly tapering beyond sacculus; sacculus slender, simple; lateral parts of transtilla broad, tapering mediad, median part slender; juxta simple, moderate; aedeagus slender; coecum penis rather large; caulis simple.

Female genitalia (Fig. 12). Papilla analis fairly large, elongate; apophyses slender, rather short; anteostial part of sterigma short, somewhat extending in middle part proximally, with lateral arms long, slender; postostial lobes small, slender; ductus bursae slender in terminal third, broadening, somewhat better sclerotized proximally; corpus bursae short; signum submedian, strongly sclerotized, trapezoid.

Material examined

Two specimens from Burma: Kambaiti, 7000 ft, one with date 18.VI.1934, R. MALAISE.

***Ceramea bruneica* sp.n.**

(Fig. 17)

Diagnosis

Facies differing from *singularis* chiefly by short, not sinuate termen of forewing; male genitalia distinct by very long arm of gnathos, slender posterior part of valva, broad aedeagus, and numerous minute cornuti.

Description

Wing span 18 mm. Ground colour of forewing cream suffused pale cinnamon, grey in dorsal half of wing postmedially; costa sprinkled and strigulated brown, weaker strigulae in posterior third of wing. Markings dark brown: dorsobasal blotch large, rounded posteriorly; subcostal part of median fascia slender, remaining parts broader, with proximal edge straight; an oblique cream rust mark separating subtornal part of fascia; subapical blotch rudimentary and dorsal part of subterminal fascia brownish. Cilia cream, brownish at tornus. Hindwing pale brownish cream, cream on periphery; cilia cream, tinged grey in anal area.

Male genitalia (Figs 3, 4). Terminal part of tegumen without prominences; uncus apical; gnathos arm short with very large bilobed terminal process, without any lateral prominence. Transtilla well sclerotized medially, with distinct concavity of ventral edge in middle, without prominent lateral lobes of dorsal edge. Valva broad to middle, slender otherwise, sacculus fairly broad. Aedeagus moderately broad, expanding terminally; cornuti numerous minute spines forming two paths.

Material examined

Holotype, male: "Brunei: 5520' Bukit Pagon LP 308, upper montane forest, 15-20.II.1982"; G.S.: 26156 [NHML].

Etymology

The name refers to the country of origin of this species.

Remarks

I am placing *bruneica* in *Ceramea* basing mainly on the sclerotized median part of transtilla which in known *Terthreutis* is membranous.

Terthreutis MEYRICK

Terthreutis MEYRICK, 1918, Exotic Microlepid., 2: 170. Type-species *Terthreutis sphaerocosma* MEYRICK, 1918, by orig. design. - CLARKE, 1958: 231; RAZOWSKI, 1987: 207 (redescription).

Amniodes MEYRICK, 1938, [in] A. CARADJA & E. MEYRICK, Dt. ent.Z.Iris, 52: 13. Type-species: *Amniodes xanthocyclus* MEYRICK, 1938, design. by monotypy. - CLARKE, 1958: 24.

Description

Terthreutis was re-described by RAZOWSKI (1987). Additionally it can be mentioned that the forewing marking is characteristic of this genus; oval pale edged blotch a remnant of postmedian fascia (cf. RAZOWSKI 2003) and subdivision of other tortricine elements into a series of oval or rounded pale edged blotches are autapomorphies of this genus. The pattern consists of basal blotch preserved in dorsal half of wing (parts of basal fascia + subbasal fascia), median fascia represented of 2-6 blotches, and terminal, more or less reduced markings. A pair spots occur in anterior part of thorax and a large blotch (crest) is developed in its posterior part.

Labial palpus is slender, usually ca 2. Antenna simple, short ciliate except for males of *duosticta* in which ciliae are long.

Male genitalia are rather simple and weakly differing from species to species. Only in *T. furcata* RAZOWSKI, 2008 characterizes with distinctly bifurcate end part of uncus.

Female genitalia are rather insufficiently known (examined in four species). All have a weakly developed posterior signum in form of a scobinate, slightly sclerotized concavity.

Early stages and biology

Not known.

Distribution

Oriental region from Nepal through Darjeeling, India, Yunnan in China to Taiwan, south from Bengal to Vietnam, Sabah, Brunei, and Sumatra.

Comments

The supposed autapomorphies of *Terthreutis* are: the shape of transtilla with its broad basal sclerites and membranous or submembranous median part, the presence of a sac-shaped lobe of distal surface of juxta, and the forewing pattern consisting of a series of oval blotches. Such transformations of the forewing markings are found also in Cochylini and some Chlidanotini. The differences between the species of *Terthreutis* are slight; apart from the external characters there are some differing characters in the male genitalia (except for *furcata*). There are two groups of species, one with short uncus, the other with uncus very long.

Unfortunately I have had no chance to examine the species described by BAI (1993) from China.

***Terthreutis argentea* (BUTLER)**

(Figs 18, 19)

Ichthyura argentea BUTLER, 1886, Illustr. Typical Lepidopt. Heterocera Br. Mus., 6: 24, pl. 102, fig. 12. Type locality: India, West Bengal: Darjeeling. Type location: NHML.

Description

Wing span 16 - 21 mm. Ground colour in dorsal, mediobasal, and apical parts of wing white; tinged brownish in costal, basal area and postmedially, mixed with ochreous subterminally; sparse fine, brownish strigulae present; diffuse brownish fascia from 1/3 of costa to tornal part of termen, and more rust fascia from end of median cell to apex. Dorsobasal blotch chestnut, ochreous at dorsum; median fascia consisting of 2 or 3 three brown spots followed by ochreous, rust edges large blotch. Cilia white or cream brown at apex and in dorsal half. Hindwing brownish grey, whitish in distal half; cilia white.

Variation. Pale examples with weak markings; dark examples with broad oblique fascia, small subterminal pale area, and rust suffusions.

Male genitalia (Figs 5, 6). Uncus rather short; median lobe of arm of gnathos subtriangular, terminal lobe rounded; transtilla membranous medially; valva broad basally; aedeagus proportionally small.

Female genitalia not known.

Distribution

India: West Bengal, Sikkim. One specimen collected in October.

Material examined

Holotype and 4 males from Sikkim.

***Terthreutis xanthocycla* (MEYRICK)**

(Fig. 22)

Amniodes xanthocycla MEYRICK, 1938 [in] CARADJA & MEYRICK, Dt. ent. Z. Iris, 52: 13. Type-locality: China: Likiang. Type location: NHML. - OBRAZTSOV, 1965, Tijdschr. Ent., 108: 8 (*Terthreutis*). - CLARKE, 1958, Cat., 3: 24. pl., 12, figs 1-1d. (phot.: wings, venation, head, male genit. of holotype). - RAZOWSKI, 1987, Acta zool. cracov., 30(11): 207, figs 360-363 (male genit.).

Description

Wing span 18 mm. Ground colour of forewing cream, tinged brownish in costal and terminal parts, with brownish strigulation. Dorsobasal blotch rust with browner marks and ochreous admixture at wing edge, followed by brown-grey subcostal suffusion; oblique row of spots from mid-dorsum to before apex, rust brown at wing edges, paler at middle; subterminal area cream limited by a curved browner line proximally; no diffuse line from 1/3 of costa to tornus. Cilia brownish with some more cream parts. Hindwing whitish; cilia similar.

Male genitalia (Fig. 7,8). Uncus short; arm of gnathos with subterminal lobe; valva slender except for basal portion; median part of transtilla membranous; juxta with dorsal bulb; aedeagus slender; cornuti, a group of long, slender spines.

Female not known.

Material examined

Holotype and two males from North Yunnan.

Terthreutis bulligera MEYRICK

(Figs 20, 21)

Terthreutis bulligera MEYRICK, 1928, Exotic Microlepid., **3**: 459. Type-locality: India: Bengal: Calcutta. - CLARKE, 1958: 231, pl.115, figs 2-2b (adult: wings, female genit. of type). - DIAKONOFF, 1976, Zool.Verh., nr. 144: 128, figs 98 (female genit.), 101 (male genit.).

Description

Wing span 20 mm. Ground colour of forewing whitish cream suffused brownish, sparsely strigulated brown; terminal area darker, more brown or ochreous brownish. Markings in the type yellowish brown with chestnut shades; dorsobasal blotch atrophying at dorsum; median fascia ill-defined, with more distinct median and subdorsal spots; terminal mark connected with subterminal blotch followed by a few spots reaching apex of wing. Cilia pale yellow-brown. Hindwing whitish with brownish admixture; cilia whitish.

Variation. Dorsobasal blotch large, chestnut brown; subterminal blotch brownish to rust brown, pale edged posteriorly, accompanied by some paler and smaller blotches.

Material examined

Holotype and 17 specimens from Sikkim.

Distribution

India: Bengal; Sikkim; Nepal (DIAKONOFF 1976) and Taiwan (KAWABE & KOMAI 1992).

Remarks

According to DIAKONOFF (1976) male differs from *xanthocycla* in longer aedeagus more dilated anteriorly and truncate coecum penis. The female with sterigma broad, rounded latero-proximally.

***Terthreutis combesae* sp.n.**

(Figs 23, 24)

Diagnosis

This species is close to *bulligera* and *xanthocycla* as its markings of forewing show but *combesae* is distinct by its cream ground colour of forewing and yellowish brown markings, not differentiated terminal area, and by costally produced dorsobasal blotch; female genitalia of *combesae* characterise with short, weak sclerite of antrum.

Description

Wing span 25 mm. Head and thorax brownish cream; posterior crest brownish. Ground colour of forewing cream suffused yellowish brown, desnsely strigulated pale yellowish brown. Markings yellowish brown; dorsobasal blotch small, browner than remaining markings, extending, pointed costad, pale dorsally; subterminal fascia consisting of three or four spots; both last elements connected by means of dorsal suffusion. Cilia concolorous with ground colour or slightly browner. Hindwing cream slightly tinged yellowish brown; cilia cream.

Male not known.

Female genitalia (Fig. 13). Sterigma proportionally large, rounded proximally, with anteostial part somewhat longer than postostial part and with large, rather slender postostial lobes; ductus bursae short, slender; short, weakly sclerotized ring in anterior part of antrum; signum small.

Material examined

Holotype female: "NW Thailand: 2100 m, Doi Inthanon National Park, 9-12.IV.1988", not dissected. Paratypes, 5 females, 4 with labels as above, one from N. Thailand, collected at 2450 m, 22. V. 1987, Coll. M.G. ALLEN.

Etymology

Terthreutis combesae is named for Jenny COMBES, the wife of my fellow specialist Kevin TUCK at the BMNH, London.

Terthreutis sphaerocosma MEYRICK

(Fig. 25)

Terthreutis sphaerocosma MEYRICK, 1918, Exotic Microlepid., **2**: 170. Type locality: Sikkim. Type location: NHML. - CLARKE, 1958, Cat., **3**: 231, pl.115, figs. 1-1d (adult: wings, venation, head, male genit. of lectotype).

Description

Wing span 20 - 25 mm (in holotype 20 mm). Ground colour of forewing whitish, costa, submedian area and terminal part of wing suffused pale ochreous cream; strigulae brownish. Markings: dorsobasal blotch subsquare, dark purple brown accompanied by grey subcostal shade; row of spots extending from tornus to before apex grey; subterminal blotch rust brown; trace of median fascia at costa. Cilia whitish with remnants of brownish interruptions. Hindwing whitish, anal area suffused brownish; cilia whitish.

Variation. Ground colour of forewing suffused pale brownish, more or less distinctly strigulated; terminal area occasionally cream ochreous; subterminal blotch often dark chestnut brown; some spots of subterminal row brownish, terminal part of costa and apex suffused brownish; divisions of cilia often strong, brownish. Anal area or periphery of hindwing tinged brownish.

Male genitalia figured by CLARKE (1958).

Female genitalia not known.

Material examined

Lectotype, 2 paralectotypes, and 12 specimens from Khasias and Nepal (genitalia not examined) seen.

Distribution

India: Assam, Sikkim, Bhutan, and Nepal.

Terthreutis duosticta WILEMAN & STRINGER

(Figs 26, 27)

Terthreutis duosticta WILEMAN & STRINGER, 1929, Entomologist, **62**: 66. Type locality: Taiwan: Kanshirei.

Description

Wing span ca 17 mm. Antenna ciliate. Ground colour of forewing cream, costal and terminal area tinged ochreous brownish; strigulae brownish. Basal blotch chestnut brown in two specimens accompanied by smaller more costal spots; posterior row of spots represented by brown spots near tornus and ferruginous subterminal blotch. Cilia brownish, cream at tornus. Hindwing brownish cream; cilia cream.

Variation. Subterminal blotch occasionally brown.

Male genitalia. Uncus long, slender; arm of gnathos with rounded distal lobes; valva slightly narrowing postbasally; median part of transtilla submembranous; aedeagus slender, almost as long as costal part of valva.

Female genitalia not known.

Material examined

Holotype and two specimens from Taiwan.

Distribution

Probably endemic in Taiwan.

Remarks

DIAKONOFF (1949) synonymized this species with *sphaerocosma* but *duosticta* is distinct especially by its ciliate antenna and long uncus.

Terthreutis chiangmaiana sp.n.

(Fig. 28)

Diagnosis

Similar to *sphaerocosma* but *chiangmaiana* with pale orange apical area of forewing, rather indistinct subternal blotch, shorter aedeagus, and broad, distally concave terminal lobe of arm of gnathos.

Description

Wing span 20 mm. Ground colour brownish cream, costa tinged ochreous; apical area mixed pale ferruginous; strigulation brownish, diffuse, blackish brown along dorsum. Markings: anterior edge of dorso-basal blotch straight, extending to median cell rust brown, cream brown dorsally; tornal spot small, brown accompanied by more anterior cream brown elongate blotch; postmedian blotch rounded, brownish cream; some brown dots in apical and terminal area. Fringes brownish, paler at mid-termen, browner at tornus. Hindwing whitish cream; cilia similar.

Male genitalia (Fig. 9, 10). Uncus long, slender; arm of gnathos with small lateral prominence and large terminal lobe; valva broad; median part of transtilla membranous; aedeagus slender.

Material examined

Holotype male: NW Thailand, 1440, Chiang Mai, Doi Suthep-Pui National Park, 29.IV. - 4.V. 1988", GS 25755 [NHML]. 14 paratypes: 7 with same label; "C. Thailand 1200 m, Khao Yai National Park, 7. II. 1986"; GS 25756 [NHML].

Female genitalia not examined.

Biology

Moth collected at the altitudes of 1070 - 1500 m from late April to early May, and in February.

Etymology

The name refers to the type locality.

Terthreutis kevin sp. n.

(Figs 29, 30)

Diagnosis

Facies similar to *bulligera* but *kevin* with cream cinnamon terminal part of wing and distinct oblique fascia, and strigulation; male genitalia characteristic by pointed uncus.

Description

Wing span 18 mm. Ground colour of forewing whitish tinged pale brownish, with brown strigulation; terminal area suffused brownish ochreous; oblique brownish fascia from 1/3 of costa to before tornus. Dorsobasal blotch divided into more dorsal orange part and rust brown submedian part; median fascia represented by two yellow-brown blotches connected by brownish suffusion; subterminal blotch ochreous partially edged rust, followed by small, subcostal, browner spot; brownish shade along M3-CuA1. Cilia pale cinnamon. Hindwing whitish cream slightly mixed ochreous on periphery; cilia whitish.

Male genitalia (Figs 10, 11). Uncus moderate, slender terminally, pointed; gnathos arm broad to middle, with small prominence and single terminal lobe; valva slender, broadest at base; aedeagus slender, almost as long as costa of valva.

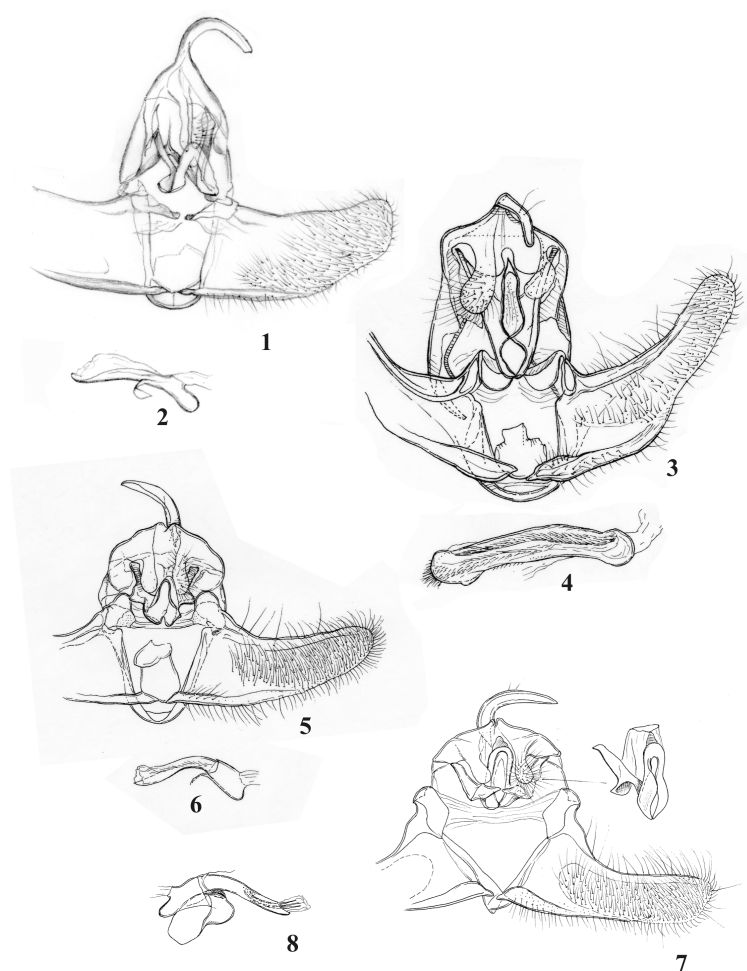
Female genitalia (Fig. 14). Sterigma short with rounded proximal corners and slender postostial lobes; ductus bursae rather short, without sclerites; signum small.

Material examined

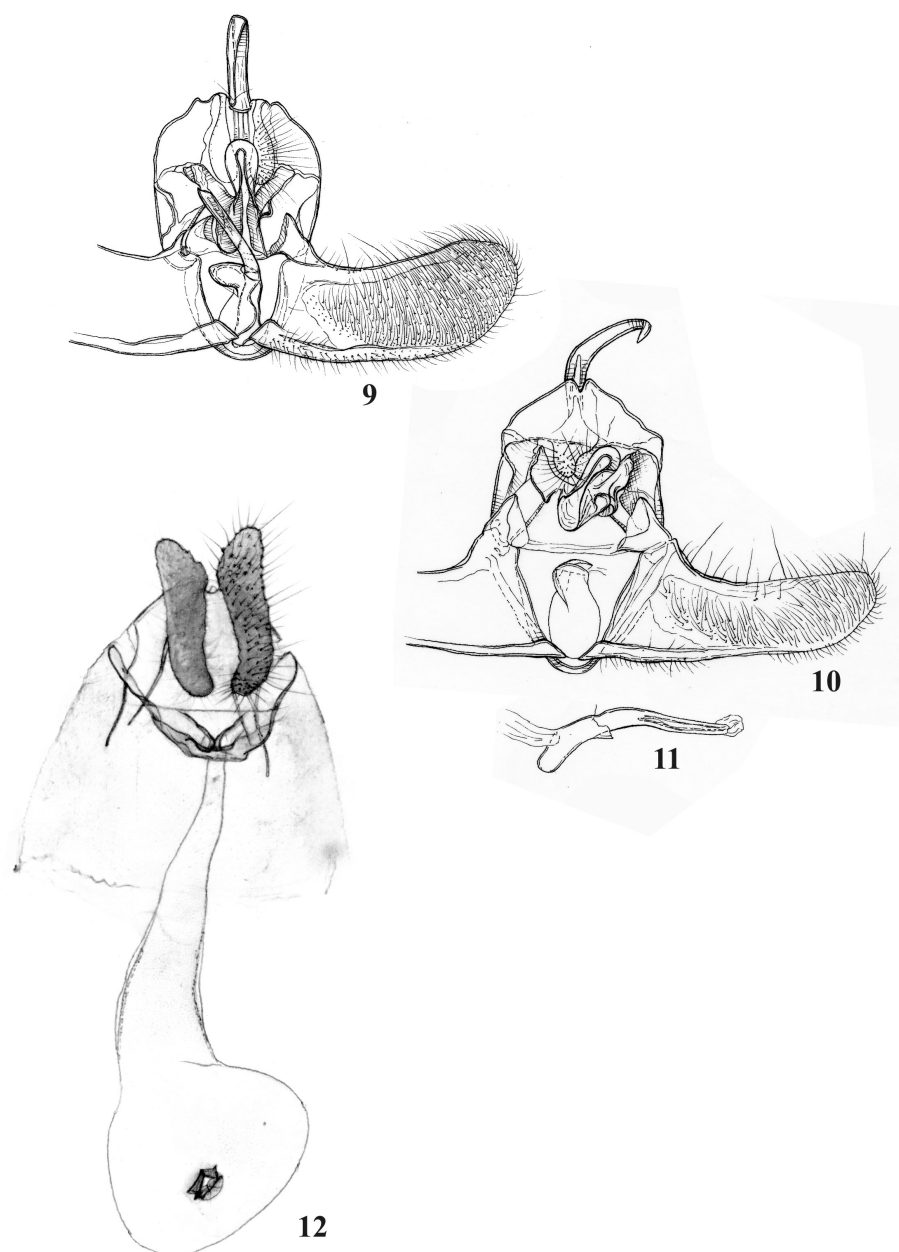
Holotype, male: "NW. Thailand: 1440 m, Chiang Mai, Doi Suthep-Pui, 22-23.IX.1986", G.S.: 25753 [NHML]. Paratypes 17 specimens from same locality, with dates: 29. IV. - 4. V. 1988; 24. V. 1966, 1490 m; 3. V. 1989, 1685 m, and 21. XI. 1989.

Etymology

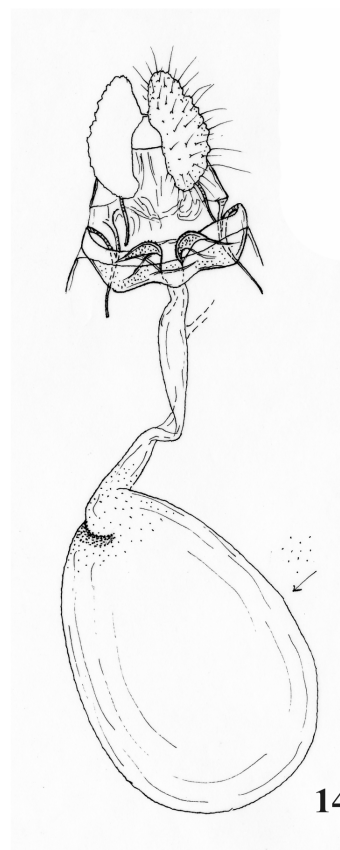
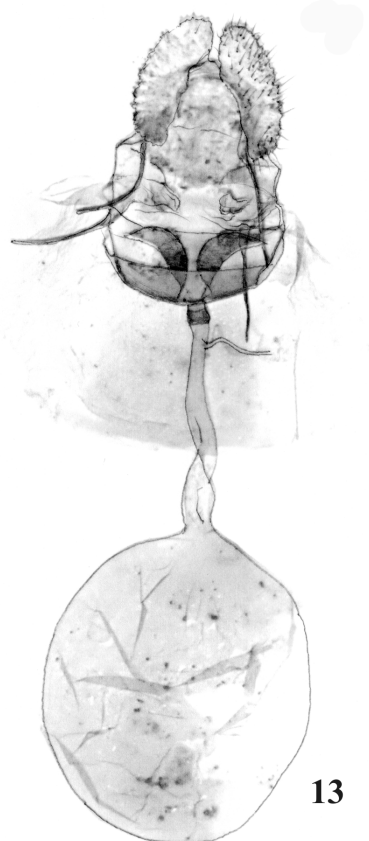
This species is named in honour of my scientist fellow Mr. Kevin R. TUCK of London.



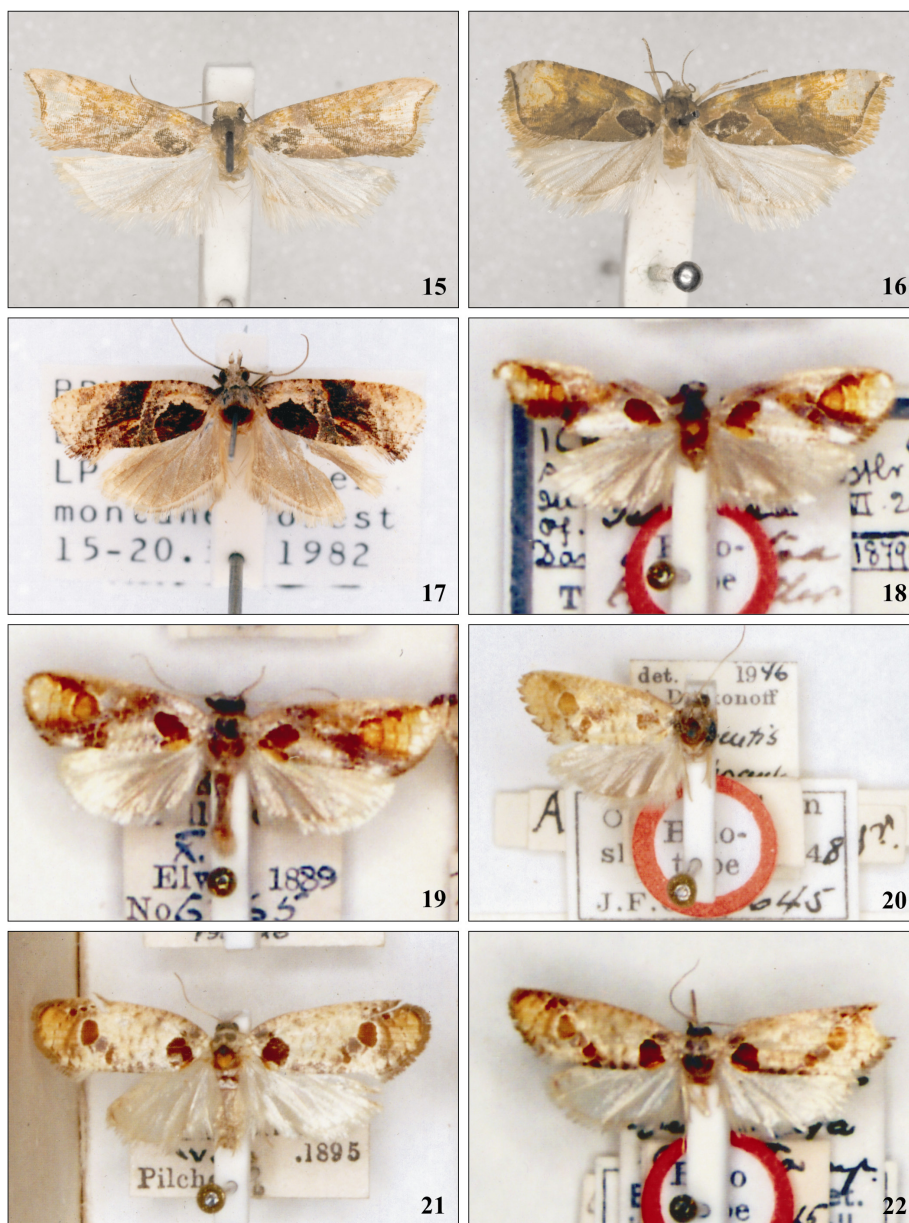
Figs 1-8. Male genitalia: 1,2 – *Ceramea singularis* DIAKONOFF, Burma: Kambaiti; 3,4 – *Ceramea bruneica* sp.n., holotype; 5,6 – *Terthreutis argentea* (BUTLER); 7,8 – *Terthreutis xanthocyclus* (MEYRICK), China: Li-kiang.



Figs 9-12. Male and female genitalia: 9 – *Terthreutis chiangmaiana* sp. n., holotype, 10,11 – *Terthreutis kevinii* sp.n., holotype; 12 – *Ceramea singularis* DIAKONOFF, Burma: Kambaiti.



Figs 13-14. Female genitalia: 13 – *Terthreutis combesae* sp. n. paratype, GS 31647; 14 – *Terthreutis kevinii* sp.n., paratype, GS 25754.



Figs 15-22. Adults: 15 – *Ceramea singularis* DIAKONOFF, Burma: Kambaiti, male; 16 – *Ceramea singularis* DIAKONOFF, Burma: Kambaiti, female; 17 – *Ceramea bruneica* sp.n., holotype; 18 – *Terthreutis argentea* (BUTLER), holotype; 19 – *Terthreutis argentea* (BUTLER), Sikkim; 20 – *Terthreutis bulligera* MEYRICK, holotype; 21 – *Terthreutis bulligera* MEYRICK, Sikkim; 22 – *Terthreutis xanthocycla* (MEYRICK), holotype.



Figs 23-30. Adults: 23 – *Terthreutis combesae* sp. n., holotype; 24 – *Terthreutis combesae* sp. n., paratype; 25 – *Terthreutis sphaerocosma* MEYRICK, paralectotype; 26 – *Terthreutis duosticta* WILEMAN & STRINGER, holotype; 27 – *Terthreutis duosticta* WILEMAN & STRINGER, Sri Lanka; 28 – *Terthreutis chiangmaiana* sp.n., paratype; 29 – *Terthreutis kevinii* sp.n., holotype; 30 – *Terthreutis kevinii* sp.n., paratype.

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